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<a href="#">Main Menu</a>	<a href="#">Search Form</a>	<a href="#">Result Set</a>	<a href="#">Show S Numbers</a>	<a href="#">Edit S Numbers</a>	<a href="#">Referring Patents</a>
<a href="#">First Hit</a>	<a href="#">Previous Document</a>			<a href="#">Next Document</a>	
<a href="#">Full</a>	<a href="#">Title</a>	<a href="#">Citation</a>	<a href="#">Front</a>	<a href="#">Review</a>	<a href="#">Classification</a>
<a href="#">Date</a>	<a href="#">Reference</a>	<a href="#">Claims</a>	<a href="#">KWC</a>		

## Document Number 1

Entry 1 of 4

File: USPT

Sep 11, 1990

US-PAT-NO: 4956415

DOCUMENT-IDENTIFIER: US 4956415 A

TITLE: Preparation of triblock copolymers

DATE-ISSUED: September 11, 1990

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Dennis; Kent S.	Midland	MI	N/A	N/A

## ASSIGNEE INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
The Dow Chemical Company	Midland	MI	N/A	N/A	02

APPL-NO: 7/ 433649

DATE FILED: November 7, 1989

## PARENT-CASE:

CROSS-REFERENCE TO RELATED APPLICATION This application is a Divisional of the copending application Ser. No. 318,788, filed Mar. 3, 1989, now U.S. Pat. No. 4,885,343 which is a continuation of 033,444, filed Apr. 1, 1987, now U.S. Pat. No. 4,839,430.

INT-CL: [5] C08L 293/00, C08L 297/04, C08L 297/02

US-CL-ISSUED: 525/280; 525/242, 525/314, 525/901, 525/941.

US-CL-CURRENT: 525/280; 525/242, 525/314, 525/901, 525/941

FIELD-OF-SEARCH: 525/242, 525/941, 525/901, 525/280, 525/314

## REF-CITED:

## U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>3598887</u>	August 1971	Darcy et al.	525/271
<u>3639523</u>	February 1972	Hayter et al.	525/280
<u>3770712</u>	November 1973	Schwab	525/280
<u>3891721</u>	June 1975	Prudence	525/271
<u>3956426</u>	May 1976	Shepers	525/271
<u>3959412</u>	May 1976	Oberlin	525/271
<u>3992483</u>	November 1976	Willis	525/271
<u>4010226</u>	March 1977	Crossland	525/271

ART-UNIT: 151

PRIMARY-EXAMINER: Seccuro; Carman J.

## ABSTRACT:

Block copolymers are prepared by providing an initial anionically polymerizable monomer portion; anionically polymerizing the initial monomer portion to provide polymer chains with living ends, and

monomer portion to provide polymer chains with living ends, and contacting the polymer chains with m-bis(phenylethenyl)benzene (PEB), a coupling agent, to bring about substantial coupling. In preferred embodiments the polymer chain living ends are capped with an .alpha.-alkylstyrene or a ring-alkyl substituted .alpha.-alkylstyrene, wherein the .alpha.-alkyl groups contain between about 1 to about 20 carbon atoms, and the ring-alkyl groups have at least 2 carbon atoms. The coupling agents employed with the capped polymer chain living ends include PEB, p-dibromoxylene, terephthaloyl chloride, 1,4-dibromobutene; and the multifunctional epoxides, multifunctional isocyanates, multifunctional aziridines, multifunctional aldehydes, multifunctional ketones, multifunctional anhydrides, multifunctional esters, and polyhalides.

12 Claims, 0 Drawing figures

Main Menu	Search Form	Result Set	Show S Numbers	Edit S Numbers	Referring Patents				
First Hit		Previous Document			Next Document				
Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC

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